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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,244	02/10/2005	Charles Perkins	03-19 US	4660
23693	7590	11/22/2006	EXAMINER	
Varian Inc. Legal Department 3120 Hansen Way D-102 Palo Alto, CA 94304			CHRISTENSEN, RYAN S	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/524,244

Applicant(s)

PERKINS ET AL.

Examiner

Ryan Christensen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/12/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/12/06 have been fully considered but they are not persuasive.
2. With respect to claims 4 and 9, applicant argues that the membrane disclosed in Baret et al. allows the trace gas to pass but does not block other gasses. However, the membrane 11 would in fact block other gases or portions of some other gases. The claim does not require that all other gasses be completely excluded.
3. With respect to claim 1, applicant argues that there is no motivation to replace the mass spectrometer or Barret with the ionization gauge of Bohm. However, the mass spectrometer and the ionization gauge are both well known for the purpose of detecting a trace gas. The courts have held substituting equivalents for the same purpose not to be inventive (See MPEP 2144.06).
4. With respect to claim 13, applicant argues that there is no motivation to provide a second leak detector because Baret purports to operate over a wide range of pressures. However, there is still motivation to one of ordinary skill in the art to accurately detect over a wider set of pressure ranges by providing a second leak detector.

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 4, 5, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,014,892 (Baret et al.).
7. With respect to claim 4, Baret et al. disclose a first sealable chamber (16, Fig. 4) configured to receive a test piece (19, Fig. 4) containing a trace gas (Col. 4 lines 35-37); a second sealable chamber (18, Fig. 4); a first valve (8, Fig. 4) coupled between the first and second chambers (Fig. 4); a leak detector (Col. 2 line 59 to Col. 3 line 7) including a test port (Fig. 4) and a vacuum pump (3, Fig. 4); a second valve (10, Fig. 4) coupled between the second chamber and the test port of the leak detector (Fig. 4); a trace gas permeable member (11, Fig. 4, and Col. 3, lines 21-27) coupled in parallel with the second valve between the second chamber and the test port of the leak detector (Fig. 4), the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles (Col. 3, lines 21-27);
8. With respect to claim 5, Baret et al. disclose the second valve (10) is closed at relatively high pressures in the second chamber and wherein the second valve is open at relatively low pressures in the second chamber (Col. 3, lines 32-61, at

lines 41-41, Baret et al. explain that when the pressure is relatively low valve 10 is opened to take direct measurements).

9. With respect to claim 8, Baret et al. disclose the permeable member is permeable to helium (Col. 3, lines 21-21 and Col. 3, line 1).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-3, 6, 7, 9, 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,014,892 (Baret et al.) in view of U.S. Patent 5,661,229 (Bohm et al.).
12. With respect to claim 1, Baret et al. disclose a first sealable chamber (16, Fig. 4) configured to receive a test piece (19, Fig. 4) containing a trace gas (Col. 4 lines 35-37); a second sealable chamber (18, Fig. 4); a first valve coupled between the first and second chambers (8, Fig. 4); a leak detector (Col. 2 line 59 to Col. 3 line 7) having a test port (Fig. 4); a trace gas permeable member (11, Fig. 4 and Col. 3, lines 21-27) coupled between the second chamber (18, Fig. 4) and the test port (Fig. 4) of the leak detector, the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles (Col. 3, lines 21-27); a vacuum pump (3, Fig. 4) having an inlet (Fig. 4); and a second valve (10,

Fig. 4) coupled between the second chamber and the inlet of the vacuum pump (Fig. 4).

Baret et al. do not explicitly disclose that the leak detector comprises an ion pump. However, Bohm et al. disclose an ion pump as for detecting leaks in a system with a permeable membrane (ionization gauge, 8, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system taught by Baret et al. by replacing the mass spectrometer with a vacuum type ionization gauge because they are known equivalents in the art for detecting trace gasses and the vacuum ionization gauge consumes gas eliminating the need for a gas evacuation system (Bohm et al., Col. 1, lines 41-45).

13. With respect to claim 2, Baret et al. disclose the permeable member is permeable to helium (Col. 3, lines 21-21 and Col. 3, line 1).
14. With respect to claim 9, Baret et al. disclose providing a first sealable chamber (16, Fig. 4), a second sealable chamber (18, Fig. 4) and a first valve coupled between the first and second chambers (8, Fig. 4); placing a test piece (19, Fig. 4) containing a trace gas (Col. 4 lines 35-37) in the first chamber (Fig. 4) with the first valve closed (Col. 4, 35-46); vacuum pumping the second chamber with the first valve closed (Col. 4, 42-46); opening the first valve, wherein gas in the first chamber expands into the second chamber (Col. 4, lines 47-49); providing a trace gas permeable member coupled to the second chamber (11, and Col. 4 lines 49-53); and detecting a leak in the test piece by sensing the trace gas that

passed through the permeable member (Col. 4 lines 49-53), the trace gas permeable member allowing the trace gas to pass and blocking other gases, liquids and particles (Col. 3, lines 21-27).

15. With respect to claim 10, Baret et al. disclose vacuum pumping the second chamber with the first valve open, and sensing the trace gas pumped from the second chamber to provide detection of small leaks (Col. 3 lines 41-52).
16. With respect to claims 3, 6, 7, 12 Baret et al. do not explicitly disclose the permeable member comprises a quartz member, the apparatus further comprising a heating element in thermal contact with the quartz member and a controller configured to control the heating element, nor the trace gas permeability of the permeable member being controllable. However Bohm et al. disclose the permeable member comprises a quartz member (quartz glass layer, 7, Fig. 1 and 2), the apparatus further comprising a heating element (heating filaments, 16, Fig. 2) in thermal contact with the quartz member (Fig. 2) and a controller configured to control the heating element (Col. 3, lines 36-39, talks about heating the quartz, and Col 2. lines 24-28 talks about switching off the heaters), and the trace gas permeability of the permeable member being controllable (Col. 2, lines 7-28). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system taught by Baret et al. by providing a membrane made of quartz with heaters for controlling permeability, as disclosed in Bohm et al. because quartz membranes are well

- known in the art for this purpose, especially for permeability to Helium (Col. 2, lines 27-23).
17. Claims 13 –17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,014,892 (Baret et al.) in view of U.S. Patent 5,661,229 (Bohm et al.) as applied to claim 3 above, and further in view of U.S. Patent 5,625,141 (Mahoney).
 18. With respect to claim 13, the combination as applied to claim 3, does not disclose two leak detectors. While numbering a first and second leak detector is an arbitrary distinction, the leak detector taught by the combination as applied to claim 1 will be referred to as the second leak detector comprising an ion gauge. Thus the combination as applied to claim 3 fails to disclose a first leak detector. However, Mahoney et al. disclose a first (12, Fig. 1, and Col.3, lines 43-62) and a second (14, Fig. 1, and Col.3, lines 43-62) leak detector. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system taught in Baret with a second leak detector in order to reliably detect a very wide range of leak rates (Mahoney et al. Col. 3, lines 53-62).
 19. With respect to claim 14, Baret et al. disclose the second valve (10, Fig. 4) is closed at relatively high pressures in the second chamber and wherein said second valve is open at relatively low pressures in the second chamber (Col. 3, lines 32-61, at lines 41-41, Baret et al. explain that when the pressure is relatively low valve 10 is opened to take direct measurements).

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20. With respect to claims 15 and 16, the combination as applied to claim 3, discloses the permeable member comprises a quartz member (Bohm et al., quartz glass layer, 7, Fig. 1 and 2), the apparatus further comprising a heating element (Bohm et al., heating filaments, 16, Fig. 2) in thermal contact with the quartz member (Bohm et al., Fig. 2) and a controller configured to control the heating element (Bohm et al., Col. 3, lines 36-39, talks about heating the quartz, and Col. 2, lines 24-28 talks about switching off the heaters), and the trace gas permeability of the permeable member being controllable (Bohm et al., Col. 2, lines 7-28).
21. With respect to claim 17, Baret et al. further disclose the permeable member is permeable to helium (Col. 3, lines 21-21 and Col. 3, line 1).

Allowable Subject Matter

22. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Pertinent Prior Art

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

European Patent Application 0,352,371 discloses a a leak detector including a quartz membrane that is permeable to Helium and whose permeability is controlled with a controller through heating elements.

U.S. Pre-Grant Publication 2005/0199042 (Perkins et al.) is a commonly owned application with the current application.

U.S. Patent 4,918,975 (Voss) discloses leak detection with a trace gas such as helium with a membrane permeable to the trace gas.

U.S. Patent 3,951,827 (Hall) discloses an ion pump, a membrane permeable to trace gasses as well as a mass spectrometer for determining leaks of various sizes.

U.S. Patent 3,280,619 (Spies) discloses a leak detection system where the charge of an ion pump is used to determine the concentration of a tracer gas escaping an article.

Conclusion

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
25. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory

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period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Christensen whose telephone number is 571-272-2683. The examiner can normally be reached on Monday - Friday, 8am - 5pm.
27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RC


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